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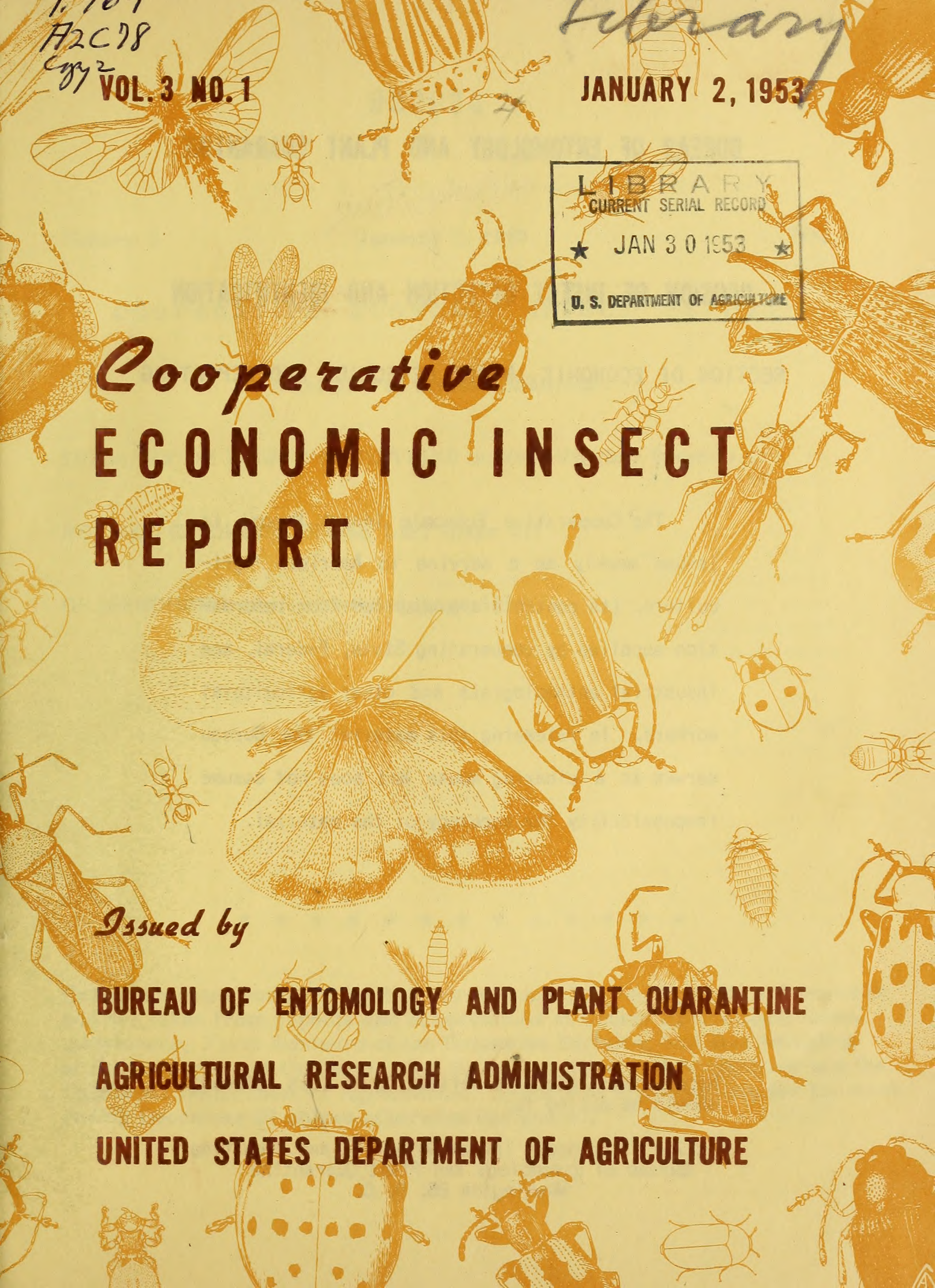

Cooperative ECONOMIC INSECT REPORT

Issued by

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
AGRICULTURAL RESEARCH ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

DIVISION OF INSECT DETECTION AND IDENTIFICATION

SECTION OF ECONOMIC INSECT DETECTION AND REPORTING

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Bureau serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 3 January 2, 1953 No. 1

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

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California notes compiled by S. Lockwood are for the first half of December and are taken from reports and observations of County Agricultural Commissioners, Farm Advisors of the Extension Division, and entomologists of the University of California, the U. S. Department of Agriculture and the California Department of Agriculture. Reports in this issue are for the week ending December 27 unless otherwise designated.

WEATHER FOR THE WEEK ENDING DECEMBER 30, 1952

The past week was drier and much colder than the previous week with no great extreme of either temperature or precipitation. Temperatures averaged slightly above normal in the central California Valley and well above in the northern border region east of the Continental Divide. Elsewhere averages were generally slightly below normal except 10° to 12° below in the central Great Plains where several inches of snow lay on the ground throughout the week.

Unseasonably mild temperatures with minimum above freezing generally prevailed east of the Mississippi River the first two days of the period and along the Atlantic Coast until the weekend. In contrast, temperatures were much below normal in the Far West the first half of the week and in the Rocky Mountains until the last two days. From the 27th to the 29th cold air overlay the entire Nation and freezing was general except in the Florida Peninsula and along the Gulf and Pacific Coast. Below zero temperatures were recorded in the Rocky Mountains from the 24th through the 26th with several stations in Wyoming recording -35° or lower in the northern and central Great Plains on the 26th and 27th and in the extreme Northeast on the 28th. In the Far West light to moderate precipitation occurred almost daily from central California northward along the Coast and occasionally spread across the Northern Plateau to the Continental Divide and on the 27th into southern California.

Frequent light to moderate rain fell along the Gulf Coast with heavy amounts in southern Texas on the 27th and 29th. Precipitation was general over the northeastern quarter of the Country and in the southeast except Florida on the 23d, continuing in the northeast through the 25th except along the Coast and in and around the Lake Region through the 27th. Weekly precipitation moisture totals exceeded an inch along the central and north Pacific Coast, along the Gulf Coast except in Florida and in southern Maine. Little or none fell in Arizona, the northern Great Plains, Arkansas, northern portions of Mississippi and Alabama, Kentucky, New Jersey, Maryland and Virginia. Snowfall, though frequent in northcentral and northeastern sections, was generally very light. Over an inch of snow covered the ground throughout the week in the central and northern Great Plains, the Upper Mississippi Valley, Upper Lakes Region and mountainous areas of New York and New England. (Summary Supplied by U. S. Weather Bureau)

CEREAL AND FORAGE INSECTS

SALT-MARSH CATERPILLAR (Estigmene acrea) -- CALIFORNIA - Extensive infestations reported in Riverside County alfalfa fields. Medium infestations in Imperial County alfalfa fields. Controls applied.

CORN EARWORM (Heliothis armigera) -- CALIFORNIA - Medium damage to sweet corn in Santa Barbara County. Controls applied.

CHINCH BUG -- LOUISIANA - Reported damaging St. Augustine grass in New Orleans with both adult and nymphal stages present. (E. Lott, Dec. 15)

FRUIT INSECTS

CITRUS RED MITE (Metatetranychus citri) -- CALIFORNIA - Reported medium to heavy on lemons in Santa Barbara and Riverside County citrus groves where no control was carried out. Some heavy infestations occurred in San Bernardino County citrus groves. Some locally heavy infestations reported from Orange County.

CITRUS RUST MITE (Phyllocoptruta oleivora) -- CALIFORNIA - Heavy infestations in untreated citrus groves were reported from San Diego County with re-occurring infestations appearing in oil sprayed groves. Medium infestations occurred in parts of Orange County.

BLACK SCALE (Saissetia oleae) -- CALIFORNIA - Heavy infestations in untreated groves were reported in San Diego and San Bernardino Counties. Locally medium infestations were reported from Orange County. Scattered, generally light infestations in lemon groves in San Bernardino County.

CALIFORNIA RED SCALE (Aonidiella aurantii) -- CALIFORNIA - Light to heavy infestations in lemon groves were reported from San Bernardino County. Heavy infestations occurred in untreated citrus in San Diego County. Locally heavy infestations were reported from Orange County. Camellias were reported infested in Sacramento County.

ORANGE TORTRIX (Argyrotaenia citrana) -- CALIFORNIA - Locally medium infestations were reported from Orange County orange groves.

PURPLE SCALE (Lepidosaphes beckii) -- CALIFORNIA - Light, locally medium infestations occurred in Orange County citrus groves. Only light infestations in orange groves were reported from Santa Barbara coastside groves.

GRAPE MEALYBUG (Pseudococcus maritimus) -- CALIFORNIA - Medium infestations built up in a few citrus groves in the San Fernando Valley in Los Angeles County; Cryptolaemus montrouzieri, lady beetles, were released.

BLACK VINE WEEVIL (Brachyrhinus sulcatus) -- CALIFORNIA - Medium to very heavy damage to strawberry fields was reported from Santa Barbara County.

TORTRICID LARVAE -- CALIFORNIA - Unidentified leaf rollers were responsible for light to medium damage in strawberry fields in Santa Barbara County.

GREENHOUSE THRIPS (Heliothrips haemorrhoidalis) -- CALIFORNIA - Medium local infestations on avocados were reported from Orange County.

WHITE PEACH SCALE (Pseudaulacaspis pentagona) -- GEORGIA - Heavy infestation on scattered peach trees in an orchard near Marshallville, south Georgia. This insect is prevalent in a few orchards in the Georgia Peach Belt. (O. I. Snapp, Dec. 20)

NAVEL ORANGEWORM (Myelois venipars) -- CALIFORNIA - Infestations in walnut orchards were reported light in Stanislaus County but greater than in previous years.

TRUCK CROP INSECTS

DIAMONDBACK MOTH (Plutella maculipennis) -- CALIFORNIA - Light to moderate infestations on broccoli and cabbage was reported from Santa Cruz County.

GARDEN BAGWORM (Apterona crenulella) -- CALIFORNIA - The snail-like bags of this pest were common on fence posts, boards and apple trees in the Meadow Vista area in Placer County.

CABBAGE APHID (Brevicoryne brassicae) -- CALIFORNIA - Light to moderate infestations on broccoli, brussels sprouts, cabbage and cauliflower occurred in Santa Cruz County. Light infestations occurred in Monterey County. Medium infestations in broccoli fields in Stanislaus County. From 5 to 10 percent crop loss to cole crops was reported from San Diego County. Locally heavy infestations on cole crops were reported from Orange County. GEORGIA - Heavy infestation on one acre of cabbage in Toombs County, Dec. 18. (C. M. Beckham)

CORN EARWORM (Heliothis armigera) -- CALIFORNIA - Light infestations were reported in lettuce fields in Monterey County.

IMPORTED CABBAGEWORM (Pieris rapae) -- CALIFORNIA - Serious numbers occurred in 2,000 acres of broccoli, cabbage and cauliflower in Santa Clara County.

SALT-MARSH CATERPILLAR (Estigmene acrea) -- CALIFORNIA - Medium damage to lettuce and carrots occurred in Imperial County. Trenching and paper barriers were reported used. Extensive infestations on cabbage and beans were reported from Riverside County.

CABBAGE LOOPER (Trichoplusia ni) -- CALIFORNIA - Extensive infestations on beans, cabbage and lettuce occurred in the Palo Verde Valley of Riverside County.

ARTICHOKE PLUME MOTH (Platyptilia carduidactyla) -- CALIFORNIA - Light to heavy infestations were reported in Santa Barbara County artichoke fields.

BANDED CUCUMBER BEETLE (Diabrotica balteata) -- GEORGIA - Light infestation on turnips in Toombs County, Dec. 18. (C. M. Beckham)

A STINK BUG (Pentatomidae) -- GEORGIA - Heavy infestation of adults (few nymphs) on turnips in Toombs County. Population reduced about 85 percent by recent cold weather. Numerous dead adults on ground under plants, Dec. 18. (C. M. Beckham)

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) -- GEORGIA - Heavy infestation on turnips in Toombs County, Dec. 18. (C. M. Beckham)

VEGETABLE WEEVIL (Listroderes costirostris obliquus) -- GEORGIA - Moderate infestation of larvae feeding on foliage of turnips in Toombs County, Dec. 18. (C. M. Beckham)

A WEBWORM -- GEORGIA - Moderate infestation in buds of cabbage in Toombs County. Question of multiple heading of cabbage due to feeding of this insect, Dec. 18. (C. M. Beckham)

COTTON INSECTS

COTTON APHID (Aphis gossypii) -- CALIFORNIA - This aphid was reported present in all green cotton fields in Fresno County.

SALT-MARSH CATERPILLAR (Estigmene acrea) -- CALIFORNIA - Extensive infestations in cotton fields of the Palo Verde Valley in Riverside County. Infestations were also reported in Imperial County cotton fields.

FOREST INSECTS

GREENHOUSE LEAF TIER (Phlyctaenia rubigalis) -- CALIFORNIA - Severe infestations on holly were reported from Humboldt County.

ROOT WEEVILS (Brachyrhinus spp.) -- CALIFORNIA - Heavy damage was reported from San Mateo County to rhododendron, camellia Irish yew, and English laurel in nurseries.

ELM LEAF BEETLE (Galerucella xanthomelaena) -- CALIFORNIA - The infested area was extended to cover the western half of the Antelope Valley in Los Angeles County.

INSECTS AFFECTING MAN AND ANIMALS

IMPORTED FIRE ANT (Solenopsis saevissima var. richteri) -- LOUISIANA - Reported found in St. Bernard, Plaquemines and Calcasieu Parishes for the first time. (G. H. Culpepper, Dec. 12)

SUMMARY OF INSECT CONDITIONS - 1952

WEST VIRGINIA

Compiled by F. W. Craig

Reviewed by C. K. Dorsey,
C. F. Bishop, E. O. Hamstead

Insect pest conditions in West Virginia during 1952 may be grouped under the following sub-headings: special surveys, status common pests, new pests, and damage caused by unknown insects.

Special surveys were made to determine the distribution and extent of damage by the following insects: European corn borer, Japanese beetle, white-fringed beetle, European chafer, and Brood IX of the periodical cicada. Surveys for the golden nematode, a damgerous pest of potatoes, have been made in recent years with negative results.

Surveys for EUROPEAN CORN BORER (Pyrausta nubilalis) were confined to three counties. In Ohio County 99 borers per 100 plants, in Nicholas County 94 borers per 100 plants, and in Mason County 4 borers per 100 plants were found. The figure for Nicholas County is much higher than for the past five years. In Ohio County it is higher than for the past two years, but under the figure for 1949. In Mason County the figure is about the same as for the previous years of the survey. This insect was also definitely recovered from Tucker, Clay and Cabell Counties, though it has been assumed as being in these counties for some time. In Cabell County the borer was common, but in Tucker and Clay Counties the infestation was very light. Observations in one field in Marion County showed moderate corn borer damage. Roadside surveys in the South Branch Valley indicated a light population in that section.

JAPANESE BEETLE (Popillia japonica) was found in a few new places in 1952: Dunbar, Ceredo-Kenova, and Lost City. The adults were also found to have spread some from the known infested areas. In the Grafton, Philippi, Clarksburg area and in the Northern Panhandle area, this insect was about as abundant as in past years. In the Parkersburg-Waverly area, and in the Belle-DuPont area, there seemed to be a great increase in abundance over former years. In the Berkeley-Jefferson County area this insect was not as abundant as for the past two years.

An intensive survey for WHITE-FRINGED BEETLE (Graphognathus leucoloma) and localized inspections for EUROPEAN CHAFER (Amphimallon majalis) failed to discover any specimens of these insects in the State.

Only limited surveys to determine the extent of the territory occupied by Brood IX of the PERIODICAL CICADA (Magicicada septemdecim) was possible this year. Observations made and reports received indicate that the brood was very abundant. Many trees and shrubs were severely damaged. This brood occupies territory bounded on the north by the Gauley River from its mouth to the mouth of Cranberry River. From here a line due east to Virginia marks the northern border. This eastern half of the northern border is difficult to establish as the adults did not generally infest the area. Many mountains over 3,000 feet in elevation occur in this general area and the periodical cicada does not generally exist in such area. To establish an accurate map of the brood it would be necessary to visit every mountain and valley in the area. Adults were known to have been present on Elk Mountain north of Marlinton. Two points on the western border of the Brood were carefully established as one-half mile east of Gauley Bridge and at Whittaker on Paint Creek near the Fayette-Kanawha line. Adults were very evident near Beckley. Studies in previous years placed the western line near Edwight in Raleigh County, Glen Rogers and Mullins in Wyoming County, and the Mercer-McDowell County line. No specimens of M. casinii were found in the adults making up this brood.

Infestations of the insect pests expected to be destructive every year, were generally lighter than usual, with the exception of BAGWORM (Thyridopteryx ephemeraeformis). This insect was more abundant in the Charleston area than in any previous year experienced by the writer. MITES were not especially abundant in spite of the extreme dry weather from August on.

The pest situation on field crops was variable. GRASSHOPPERS and CORN EARWORM (Heliothis armigera) were perhaps more abundant than usual. There were no reports of outbreaks of ARMYWORMS. SPITTLEBUGS which have been quite abundant for a few years were perhaps reduced in numbers.

No reports on orchard pests are available except for the Eastern Panhandle area. CODLING MOTH (Carpocapsa pomonella) and ROSY APPLE APHID (Anuraphis roseus) are reported in this area as causing an unusual amount of damage and that PLUM CURCULIO (Conotrachelus nenuphar) was scarcer than usual. SPIDER MITES (mostly Tetranychus sp.) were abundant. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) continued as a troublesome pest and FORBES SCALE (Aspidiotus forbesi) could be found, especially in cherry orchards. Some cherry trees are being killed.

Such garden pests as MEXICAN BEAN BEETLE (Epilachna varivestis), CABBAGEWORMS (Pieris rapae and others), LEAFHOPPERS, COLORADO POTATO BEETLE (Leptinotarsa decemlineata), FLEA BEETLES, and APHIDS were present in usual numbers. A few garden beans were severely damaged by first-generation Mexican bean beetle larvae. Leafhoppers may have been fewer than usual as it seemed pole beans were better than usual and more of them on the market. STRIPED CUCUMBER BEETLE (Acalymma vittata) and SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) were scarce in and around Morgantown and Huttonsville.

Some feeding by EASTERN TENT CATERPILLAR (Malacosoma americanum), FALL WEBWORM (Hyphantria cunea), LOCUST LEAF MINERS, SYCAMORE LACE BUG (Corythucha ciliata) and ELM LEAF BEETLE (Galerucella xanthomelaena) were observed. Locust leaf miners were very abundant near Clarksburg but observations made in other areas of the State indicated the damage to be less than for the past several years. An outbreak of the elm leaf beetle defoliated elms in Parkersburg. The other forest pests were less abundant than for the past several years.

Several insects that either have not been abundant, causing damage, or have been overlooked, were collected and identified during the year. An aphid, identified by L. M. Russell as Hyalopteroides dactylidis was generally distributed over the north central area of the State. Damage to orchard grass from this insect was noted in Monongalia, Marion, Harrison and Upshur Counties. In the Huttonsville area of Randolph County only slight damage was noted. Another aphid identified by L. M. Russell to be a species of Schizolacnus infested a planting of red pine in Upshur County and an infestation of a yet unidentified scale was discovered in Ohio County. An outbreak of a pine needle miner was reported from Pendleton County. A weevil identified by R. E. Warner as Cyrtepistomus castaneus was collected in several spots near Charleston. It was feeding heavily on oak but seemed a general feeder. Azalea and dogwood were also observed to be host plants. The occurrence of ALFALFA WEEVIL (Hypera postica) in an adjacent eastern state was reported this year. No survey was conducted in this State, but the insect probably could be found in Berkeley and Jefferson Counties.

A few insect pest conditions of former years and two new ones were studied during the year. Damage to hemlock in small scattered spots continued. A search in June, August and October failed to determine the cause of the defoliation. Boxelders in the Charleston area suffered severely from a condition which resembled the feeding of a leafhopper. This started in the spring and continued during the season. The twigs died, new growth developed which in turn died. It is believed some trees were killed and many will have to sucker from the trunk to continue to grow next season. Examinations on two occasions failed to find an insect in abundance which could possibly be held responsible for the damage. Leaves of the honey locust in Jefferson County were generally killed and on a few trees completely killed in midsummer. The leaves were webbed together and remained on the trees. The brown trees resulting were very conspicuous. The insect responsible for this damage was identified by C. K. Dorsey as LOCUST LEAF ROLLER (*Salebria subcaesiella*).

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SURVEY METHODS

GRASSHOPPERS

Grasshopper surveys include observations on nymphs, adults, and eggs. Adult surveys are made at a time when most grasshoppers are in the adult stage and covers all areas that usually harbor grasshoppers, including crop land, pasture land, and range. The egg survey is limited to the crop land areas with some additional samples being taken in other areas where adult surveys revealed high populations. Nymphal surveys or observations are made in the spring to guide large scale control operations or for making local control recommendations.

A minimum of five stops per county should be made in the adult survey. Fifteen, twenty, or even more stops may be made in large counties with important and widespread crop and range areas. At each stop the surveyor walks into the field 100 to 200 yards or a sufficient distance to obtain an impression of the general grasshopper population present. The population is estimated on the basis of average numbers of adult grasshoppers per square yard. Similar counts or estimates are made on at least one fourth mile of the field margin or boundary. If fields are small, 10 to 40 acres, and the crops diversified, two or three fields and their adjoining margins are examined at the stop. In such cases a single rating based on an average of the number of grasshoppers present in all fields examined is assigned the stop. Adult infestations are rated according to the classficiation of infestations in the following table.

Classification of Adult Grasshopper Infestations

Classification	No. of Adults Per Sq. Yd.		Rating	Map Color
	Field	Margin		
Non Economic	2	5	1.0	White
	3	7	1.5	"
Light	4	10	2.0	Green
	6	15	2.5	"
Threatening	8	20	3.0	Yellow
	12	30	3.5	"
Severe	16	40	4.0	Blue
	24	60	4.5	"
Very Severe	32	80	5.0	Red

Information recorded for each stop should include the name of the surveyor, date, exact location, the stop number in that county, habitat, number of grasshoppers per square yard in the field and in the margin, the three dominant species with the percentage of each, and the rating. For each county surveyed additional pertinent information should be noted and supplied with the stop data. This includes brief statements on the habitats infested, localities in which concentrations for egg deposition may be occurring, flight activity, damage to crops or range, control activities and their results, notes on parasites and predators and any other information that may have a bearing on the infestations.

The rating for any stop is based on either the field or marginal count, not on a combination of both. The count that gives the higher rating is always chosen. The number of stops made in the various habitats should be in approximate proportion to their relative county acreage. If the dominant species are not known to the surveyor, collections should be made for later determination.

The egg survey is made in late September or October or even later in locations where oviposition may extend into late fall or early winter. Its purpose is to determine whether the infestation expected the following year is the same, greater, or less than was shown by the adult survey and whether a shifting of adults, after the adult survey, has changed the infestation picture. Generally this survey is made only in areas where the adult survey revealed an expected economic infestation.

In the egg survey, a minimum of five stops per county is made. Stops are scattered throughout the crop areas, and are not necessarily made in the same field as adult survey stops. Five one-square-foot samples are taken in both the field and margin in areas where important egg populations may occur in either of these habitats. The soil is shoveled into a sifting screen (1/4" or 1/8" mesh depending on soil texture) using a scoop shovel so modified that one-half square foot of soil about two inches deep can be scooped up at a time. Two scoops, therefore, equal the square foot of soil, which is sifted and examined for egg pods. In soil unsuitable for sifting surveyors use mason's trowels, sharpened on one or both edges, to scrape away the soil and plants and expose the egg pods. The average number of egg pods per square foot, in the field and on the margin, is recorded and a rating is assigned the stop according to the following classification of infestations.

Classification of Grasshopper Egg Pod Infestations

Classification	No. of Egg Pods Per Sq. Ft.				Rating	Map Color
	Large Fields :		Small Fields			
	Field:	Margin :	Field:	Margin		
Non Economic	0.25	2.0	0.5	1.0	1.0	White
	0.37	3.0	0.7	2.0	1.5	"
Light	0.50	4.0	1.0	3.0	2.0	Green
	0.75	6.0	1.5	4.5	2.5	"
Threatening	1.0	8.0	2.0	6.0	3.0	Yellow
	1.5	12.0	3.0	9.0	3.5	"
Severe	2.0	16.0	4.0	12.0	4.0	Blue
	3.0	24.0	6.0	16.0	4.5	"
Very Severe	4.0	32.0	8.0	24.0	5.0	Red

In the rating table two sets of figures for the number of egg pods per square foot are given under the heading "Large Fields" and "Small Fields." For farm land which is divided into fields of 80 acres or more, the figures under the "Large Fields" heading should be used. Where divided into fields of 40 acres or less, the figures under the "Small Fields: heading should be used. If fields between 40 and 80 acres in size are surveyed, they should be classified as either large or small, depending upon the typical size of other fields in the area. Only one field and margin need be examined at each stop and fields should be chosen which are of a representative size for the area. Ratings for stops may be assigned on the basis of either the field or marginal count, whichever yields the higher rating.

In areas where it is known that grasshoppers lay principally in the fields, five one-square-foot samples should be taken in the field and only two or three samples on the margin. If the important species in the area concentrate their eggs on the margin, then the five samples should be taken in that area and two or three check samples in the field.

Melanoplus mexicanus is an example of a species that deposits its eggs throughout fields. Fields of small grain stubble are frequently chosen and the eggs will be found along the drill rows with possible concentrations around straw stacks or in weed patches. Melanoplus bivittatus generally concentrates its egg pods in the margin. The pods may be found around the stems and in the roots of sun flowers and other coarse-stemmed plants. Melanoplus differentialis egg pods are also laid in margins. This species usually selects the crowns of gramma grass or other similar grasses and forces the egg pods in among the roots.

In sampling a field for eggs the surveyor should distribute the samples so that the fifth is taken well into the center of the field. Weed patches and other such extremely favorable habitats should be avoided unless they are representative of the area as a whole. On the margin the samples should be scattered across and along a quarter mile of its length. Narrow margins, less than 10 feet, should be avoided, if impossible, then the egg count should be reduced proportionately.

Populations of adult grasshoppers remaining, at time of survey, in excess of 4 adults per square yard should also be recorded and considered in rating an egg stop. For populations of from 5 to 10 adults per square yard, an addition of 0.5 egg pod per square foot should be made to the actual average egg count for the field or margin. For adult populations of 11 to 20 adults per square yard an addition of 1.0 pod should be made. Only good egg pods are recorded. Those containing blister beetle or beefly larvae should be considered as destroyed and excluded from the count. All egg pods should be carefully examined before they are counted as good pods. Data from both the adult and egg surveys is used in preparing infestation maps and estimates. The maps show the best estimate of the potential infestation for the succeeding year. These, together with all data collected in the surveys, are the advance determination of the general infestation picture and provide the basis for planning the control needs for the following year. The actual grasshopper populations that will require control are not known until after predators, parasites, and weather have exerted their influence in the period from egg deposition in the fall through the first and second nymphal instars in the spring. (C. W. Shockley

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